CLAIMS

1. A method for streaming of data with a limited bandwidth communications network, the method comprising:

reducing the bit rate stream using transrater means (3);

prioritising missing data packets for re-sending according to content format and/or age;

re-sending the data packets according to the prioritisation.

2. A method according to Claim 1 wherein the prioritisation step includes defining the data packets according to content type, comprising audio data packets and video data packets.

3. A method according to Claim 1 or 2 wherein the prioritisation step includes defining three video types comprising I-frames ,P-frames, and B-frames.

4. A method according to any preceding claim wherein the prioritisation step includes defining, for each data packet type, a weighting factor.

5. A method according to Claim 4, wherein the weighting factor is multiplied by the "age" factor of a data packet, calculated by subtracting the sequence number of the missing packet from the sequence number of the most recent correctly received data packet such that

$P = Wx \cdot (S-s)$,

where P is the priority, Wx, is the weighting factor of the data packet type, S is the sequence number of the most recent correctly received packet and s is the sequence number of the missing data packet.

6. A method according to Claim 4 or 5 wherein the weighting factor W for the types of data packet are, in reducing order of importance:

(i) audio;
(ii) I-frames;
(iii) P-frames;
(iv) B-frames.

7. A method according to Claim 6 comprising re-sending the data packets with the highest value of P first and thereafter re-sending in sequence according to reducing values of P, with the lowest value of P being last.

8. A method according to any preceding claim comprising incrementing a resend timer when a new data packet is received, and requesting a data packet at certain intervals of the timer.

9. A method according to Claim 8 further comprising incrementing the resend timer after a period of receiving no data packets.

10. A method according to any of Claims 1 to 7 comprising transmitting resend commands only on a certain interval of the resend timer.

11. A method according to any preceding claim wherein the limited bandwidth communications network comprises a wireless network.

12. A computer program product directly loadable into the internal memory of a digital computer, comprising software code portions for performing the steps of any one or more of Claims 1 to 11 when said product is run on a computer.

13. A computer program for performing the steps of any one or more of Claims 1 to 11 when said product is run on a computer.

14. Electronic distribution of a computer program product according to Claim 12 or a computer according to Claim 13.

15. A system (1) for streaming of data with a limited bandwidth communications network, the system comprising:

transrater means (3);

means (2) to input data packets to the transrater means to reduce the bit rate stream;

means (3) to prioritise missing data packets for re-sending according to content format and/or age;

means (6) to re-send the missing data packets according to the prioritisation.

16. A system according to Claim 15 wherein the prioritisation means (3) includes means to define the data packets according to content type, comprising audio data and video data packets.

17. A system according to Claim 15 or 16 wherein the prioritisation means (3) includes means to define three video types comprising I-frames ,P-frames, and B-frames.

18. A system according to any of Claims 15 to 17 wherein the prioritisation means (3) includes means to define, for each data packet type, a weighting factor.

19. A system according to Claim 18, wherein the weighting factor is multiplied by the "age" factor of a data packet, calculated by subtracting the sequence number of the missing packet from the sequence number of the most recent correctly received data packet such that

$P = Wx (S-s)$,

where P is the priority, Wx, is the weighting factor of the data packet type, S is the sequence number of the most recent correctly received packet and s is the sequence number of the missing data packet.

20. A system according to Claim 18 or 19 wherein the weighting factor W for the types of data packet are, in reducing order of importance:

(i) audio;

(ii) I-frames;

(iii) P-frames;

(iv) B-frames.

21. A system according to Claim 20 comprising means (6) to re-send the data packets with the highest value of P first and thereafter in sequence according to reducing values of P, with the lowest value of P being last.

22. A system according to any of Claims 15 to 21 comprising means to increment a resend timer when a new data packet is received, and requesting a data packet at certain intervals of the timer.

23. A system according to Claim 22 further comprising means to increment the resend timer after a period of receiving no data packets.

24. A system according to any of Claims 15 to 23 comprising means (6) to transmit resend commands only on a certain interval of the resend timer.

25. A system according to any of Claims 15 to 24 wherein the limited bandwidth communications network comprises a wireless network.

26. Apparatus for streaming of data with a limited bandwidth communications network, the apparatus comprising:

transrater means (3);

means (2) to input data packets to the transrater means to reduce the bit rate stream;

means (3) to prioritise missing data packets for re-sending according to content format and/or age;

means (6) to re-send the missing data packets according to the prioritisation.

27. Apparatus according to Claim 24 wherein the prioritisation means includes one or more of the following:

means to define the data packets according to content type, comprising audio data and video data packets;

means to define three video types comprising I-frames ,P-frames, and B-frames;

means includes means to define, for each data packet type, a weighting factor.

28. Apparatus according to Claim 25, wherein the weighting factor is multiplied by the "age" factor of a data packet, calculated by subtracting the sequence number of the missing packet from the sequence number of the most recent correctly received data packet such that

$P = Wx (S-s)$,

where P is the priority, Wx, is the weighting factor of the data packet type, S is the sequence number of the most recent correctly received packet and s is the sequence number of the missing data packet.

29. Apparatus according to Claim 25 or 26 wherein the weighting factor W for the types of data packet are, in reducing order of importance:

(i) audio;

(ii) I-frames;

(iii) P-frames;

(iv) B-frames.

30. Apparatus according to Claim 27 comprising means to re-send the data packets with the highest value of P first and thereafter in sequence according to reducing values of P, with the lowest value of P being last.